REMARKS

The Examiner has rejected Claims 2-13, 15 and 17-22 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, Applicant has amended Claims 15, 17 and 22 to particularly point out and distinctly claim the invention.

The Examiner has rejected Claims 2-12, 15 and 17-22 under 35 U.S.C 102(b) as being anticipated by German patent No. 4,419,065 (the '065 German patent). In response, Applicant has amended independent Claims 17 and 22 to more clearly define that the location of the annular recess is adjacent to the cavity.

The '065 German patent fails to illustrate all of the elements set forth in the amended claims of the present invention. More specifically, the '065 German patent does not illustrate a fastener setting and deforming assembly with an annular recess immediately adjacent to the cavity of the die where all of the planar sheets are deformed out of their planes into the annular recess.

Instead the '065 German patent relates to the joining of a thin sheet of material to a thick sheet of material. Typically, problems arise when a thin sheet is joined to a thick sheet if the shank of the rivet is not able to flare and provide the joint with adequate strength. In order to avoid this problem, the '065 German patent illustrates a die cavity 10 with a raised central area that encourages flaring of the rivet. As shown in Figure 1B and 1C, the periphery of the die has a raised cutting edge 12 that embeds into the thick sheet 2 of material. The raised cutting edge 12 around the die cavity 10 gives rise to what might be viewed as an adjacent annular recess (i.e.

that part which is outside of the raised cutting edge) defined around the die cavity. However, as can be seen from the drawings, the riveting method of the '065 German patent does not allow all sheets of the material to be deformed out of their planes and into the annular recess. It is clearly seen from Figure 1C that there is no deformation of the upper thin sheet 1 into the die cavity or adjacent to the die cavity. This is because the lower sheet 2 is so thick it absorbs the raised cutting edge 12.

In the alternative embodiment illustrated in Figures 2A-2C, the sheets are reversed and the periphery of the die cavity is more rounded so as to prevent penetration of the lower sheet of material. It is clearly seen that the clamping cylinder only engages the sheet of material in the region directly above the die cavity and the raised periphery of the die cavity. There is no force applied outside the periphery of the die cavity that would deform the sheets out of their planes into a recess. Moreover, since the disclosure of the '065 German patent is concerned with a particularly thick sheet of material, it would be impractical and not beneficial to alter the German sheet deforming assembly to include a force that would be large enough to deform both planar sheets.

As such, Applicants submit that independent Claims 17 and 22 are patentable over the '065 German patent. As a result, Applicants also submit that dependent Claims 2-13 and 18-21, which depend from Claim 17, are also patentable over the '065 German patent.

The Examiner has rejected Claim 13 under 35 U.S.C. 103(a) as being unpatentable over German patent No. 4,419,065 in view of Applicant's admitted prior art. As set forth above, Applicant submits that the '065 German patent fails to illustrate a sheet deforming assembly with

an annular recess immediately adjacent to the die cavity where the assembly deforms the sheets out of their planes into the annular recess. Additionally, Applicant asserts that the "Applicant's admitted prior art" also fails to illustrate a fastener setting and deforming assembly with an annular recess immediately adjacent to the cavity of the die where the planar sheets are deformed out of their planes into the annular recess.

Accordingly, Applicant respectfully submits that German patent No. 4,419,065 and Applicant's admitted prior art, either alone or in combination, fail to disclose the key features of the present invention. Therefore, Applicant submits that dependent Claims 13 is patentable over the '065 German patent in view of Applicant's admitted prior art.

In view of the foregoing amendments and remarks, it is believed that the application is now in condition for allowance and such action is respectfully requested. If the Examiner believes that a telephone conference would advance the prosecution of this case, it is requested that the undersigned attorney be contacted for that purpose.

Respectfully submitted,

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APPENDIX

Version with markings to show changes made to the Claims

15. (Twice Amended) A rivet for use in accordance with the method of claim 17, comprising a head the thickness of which increases continually in [the] a radially outwards direction to define a convex surface beneath the head.

17. (Amended) A method for joining together two or more superimposed generally planar sheets using a fastener having a shank and a fastener setting and sheet deforming assembly comprising a die with a cavity and an annular recess [defined around] immediately adjacent to said cavity, comprising the steps of:

placing the superimposed planar sheets in the fastener setting and sheet deforming assembly; and

operating the assembly to set the fastener into engagement with the sheets such that the shank of the fastener is upset in said die cavity without penetration of the lowermost sheet of the superimposed generally planar sheets, and to deform all the sheets out of their planes into the annular recess.

22. (Amended) An apparatus for joining together two or more superimposed generally planar sheets with a fastener having a shank, the apparatus comprising a fastener setting and sheet deforming assembly comprising a die, a cavity in said die and an annular recess [defined around] immediately adjacent to said cavity, the apparatus being operative to receive the sheets, to set said fasteners into engagement with the sheets such that the shank of the fastener is

upset in said die cavity without penetration of at least the lowermost sheet of the superimposed planar sheets and to deform all the sheets out of their plane into the annular recess.